**FAA NextGen Data Communications**
**Tower Trials Fact Sheet**
**November 1, 2012**

## Background:

The Data Communications (Data Comm) program will provide the ability to digitally exchange important air traffic services (ATS) information between the FAA's National Airspace System (NAS) and appropriately equipped aircraft. As identified in the FAA's NextGen Implementation Plan (NGIP), the Data Comm digital communications infrastructure is a key element necessary to implement complex operational procedures required for new NextGen services.

## Program Description:

Data Comm is a "system of systems" requiring the integration of several elements across the NAS, including En Route Automation Modernization (ERAM), Tower Data Link Services (TDLS) system, the FAA Telecommunications Infrastructure (FTI) network, and air-ground (A-G) data communications network services. Data Comm will provide the requirements and funding for necessary ERAM and TDLS automation enhancements and procure A-G communications network services to deliver a direct, controller-pilot, end-to-end data communications capability.

Data Comm will be implemented in multiple stages, to expedite delivery of new services in a low risk, cost beneficial and efficient sequence. These stages are:

- **Segment 1 Phase 1 (S1P1) –** Delivers Tower Departure Clearance (DCL) service as the initial step in launching Data Comm. DCL will allow controllers to more efficiently deliver departure clearances and revisions, which arise due to changing conditions, such as convective weather. Data Comm will reduce departure delays as well as mitigate impact delays at one airport on other airports. S1P1 will also provide much of the infrastructure required to deliver additional services in En Route and Tower. This initial Data Comm functionality is projected to commence in 2016 and will be used by aircraft equipped with Future Air Navigation Services (FANS) 1/A+ avionics.
- **Segment 1 Phase 2 (S1P2)** – Extends Data Comm into the En Route domain, delivering En Route services throughout the continental United States. S1P2 services include:
  - Transfer of Communications/Initial Check-In (TOC/IC)
  - Airborne Reroutes, i.e., "Go" Button
  - Altitude Changes and Altimeter Settings
  - Tailored Arrivals
  - Controller Initiated Routes
  - Direct-to-Fix Clearances
  - Crossing Restrictions
  - Advisory Messages
  - Speed and Headings
  - Beacon Codes
  - Stuck Microphone Check

These capabilities will be used by aircraft equipped with either FANS 1/A+ or Aeronautical Telecommunications Network (ATN) avionics, depending on the availability of the ATN standards and avionics.

- **Segment 2 (S2)** – Provides advanced air traffic management capabilities, such as 4D-trajectory based operations (TBO) and Data Link Taxi (D-Taxi), as well as the ability to automate routine non-time sensitive messages in the TRACON environment. These capabilities are expected to commence in the 2025 time frame, depending on funding and NAS priorities.

**Tower Trials:**

Data Comm will conduct trials of the DCL service, first at Memphis (lead operator participant is FedEx), with follow-on trials at Newark and Atlanta. The trials will reduce risk associated with the production system development and operational issues, validate requirements and operational training / procedures, and gather stakeholder feedback in advance of full-scale operations.

The trials have been planned in coordination with the Data Comm Implementation Team (DCIT), a joint FAA/aviation industry team established by the Data Comm program office to identify and resolve the operational challenges of transitioning to digital communications.

To be able to conduct the trials, Data Comm procured a Data Comm Trials Automation Platform (DTAP) to provide prototype Departure Clearance (DCL) Trials capability. The DTAP is being procured from ITT/Thales through the SE2020 contract vehicle. The DTAP contract was awarded on 4 Apr 2012 with a maximum contract value of $10.5M.

Upcoming DCL Trials activities include:

- DTAP site preparation at Memphis tower (complete)
- DTAP Operational Test and Evaluation (OT&E) at William J Hughes Technical Center (WJHTC) with National Air Traffic Controllers (NATCA) controllers, (complete)
- DTAP hardware equipment installation and initial checkout at Memphis (complete)
- Site Acceptance Test (SAT) in phases
- Memphis controller and technician training
- Full operational trials to begin NLT Jan 2013

Trials are scheduled to run in Memphis through November 2013, with Newark trials scheduled to commence in the early summer of 2013, and Atlanta in the late Fall 2013. Data from the trials, including messaging statistics, performance metrics, as well as controller and pilot survey responses will be collected and used to ensure the final Tower Data Link system delivers the safest, most productive departure clearance services possible. Similar trials are envisioned to pave the way for the new En Route services.

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